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PENNSYLVANIA DENTAL JOURNAL

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1949

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81st

Annual Meeting

Pennsylvania State Dental Society

in conjunction with

The Greater Pittsburgh Meeting

Hotel William Penn, Pittsburgh

June 1, 2, 3, 1949

PRESIDENT J. S. OARTEL

"Only several weeks remain for the members of the Pennsylvania State Dental Society to make final arrangements for attending the Annual Meeting which, this year, is being held in conjunction with the Greater Pittsburgh Meeting, June 1, 2, 3. As a Pittsburgher I can assure you that the 10th District members have planned a 'good meeting.' The program on the following pages indicates that this Annual State Meeting will be informative, interesting and instructive, with appropriate entertainment and opportunity for recreation. I am certain that our meeting in 1949 will be a repetition of the many successful ones that preceded it. On behalf of the officers of the Pennsylvania State Dental Society I extend to all members a most cordial invitation to attend this 81st Meeting. And I assure you a hearty welcome!"

WEDNESDAY, JUNE 1

◆

9: 00 A. M. REGISTRATION ..... 17th Floor

9: 00-12: 00 TABLE CLINICS. (See listing on page 184.)

Urban Room, Monongahela Room, Allegheny Room, Ft. Pitt Room, Parlors B-C and E-F.

12: 30 P. M. LADIES AUXILIARY. President's luncheon and bridge.

This function of the Auxiliary will be held in the University Club, Oakland, Pittsburgh. It will be $2.50 per plate. Reservations must be made before May 28 and mailed to Mrs. C. A. Flecker, 256 South Winebiddle Ave., Pittsburgh 24, Pa. Telephone: Montrose 0914.

2: 30 "PRACTICAL AIDS IN ORAL SURGERY" ..... Urban Room

Marcus H. Burton, D.D.S., Washington, D. C.

3: 30 "RELATIVE VALUE OF FLUORIDE THERAPY AND OTHER PROCEDURES IN THE CONTROL OF DENTAL DECAY" ..... Urban Room

Basil G. Bibby, Ph.D., D.M.D., Rochester, N. Y.

THURSDAY, JUNE 2

◆

10: 00 A. M. "POCKET ELIMINATION BY ELECTROSURGICAL GINGIVOPLASTY" ..... Urban Room

Levon M. Saghirian, D.D.S., Philadelphia, Pa.

10: 00-12: 00 MOTION PICTURE SECTION ..... Parlor B-C

U. S. Bureau of Standards movies will be exhibited: "Dental Amalgam Failure Caused by Moisture Contamination." "Silicate Cement."

11: 00 "COMPLETE DENTURE SERVICE" ..... Urban Room

John W. Geller, D.D.S., Indianapolis, Ind.

12: 15 PRESIDENT'S LUNCHEON ..... Monongahela Room

Address of welcome by David L. Lawrence, Mayor, City of Pittsburgh.

2:00- 4:00 MOTION PICTURE SECTION ..... Parlor B-C

Pictures from morning section will be repeated.

2:30 "PERSONALITY TYPES AMONG DENTAL PATIENTS" .... Urban Room

Edward J. Ryan, D.D.S., Evanston, Illinois.

3:30 "THE PORCELAIN JACKET CROWN ON MALPOSED, MALALIGNED AND ABNORMALLY SPACED TEETH" ..... Urban Room

S. Charles Brecker, D.D.S., New York, N. Y.

3:00- 5:00 LADIES TEA ..... Suite 468-470

The ladies attending will be the guests of the Pennsylvania State Dental Society.

9:15 DANCE ..... Urban Room

This dance and entertainment will be for the benefit of the Dental Relief Fund of the Odontological Society. Informal—$5.00 per couple. Floor show, New York acts, good music.

FRIDAY, JUNE 3

10:00 A. M. "DISCURSIVE THOUGHTS CONCERNING FIXED-BRIDGE RESTORATIONS" ..... Urban Room

B. F. Sapienza, D.D.S., Birmingham, Alabama.

11:00 "PRECISION AND SEMI-PRECISION ATTACHMENT PARTIAL CONSTRUCTION" ..... Urban Room

Jules W. Leaf, D.D.S., New York, N. Y.

1:30 P. M. SPECIAL CLINICS ..... Urban-Monongahela Rooms

B. F. Sapienza — S. Charles Brecker
Jules W. Leaf — L. M. Saghirian
Leon Berger (assistant to J. W. Geller)
(These clinics will be repeated at 3:00 P. M.)

1:30 LIMITED ATTENDANCE CLINICS ..... Parlor E-F

Periodontology Club of Western Pennsylvania. See page 186, for listing of clinics and clinicians.

The Essayists and Their Topics

MARCUS H. BURTON, Washington, D. C. ("Practical Aids in Oral Surgery," Wednesday, June 1, 2: 30, Urban Room.) Dr. Burton was graduated from Georgetown Uiversity Dental School in 1933. Since 1944 he has limited his practice to oral surgery exclusively. He is a member of the District of Columbia Dental Society and the District Medical Society. He has served the District dental society as a member of the executive committee, as general chairman of the Post-Graduate Clinic 1948, essay chairman 1949, and member of the ADA clinic committee 1949. His hospital association is the Sibley Memorial Hospital.

BASIL G. BIBBY, Rochester, N. Y. ("Relative Value of Fluoride Therapy and Other Procedures in the Control of Dental Decay," Wednesday, June 1, 3: 30, Urban Room.) Dr. Bibby is a New Zealander, having been graduated from Otago University of the University of New Zealand with a Bachelor of Dental Surgery degree in 1927. He received his Ph.D. in Bacteriology from University of Rochester in 1935, and the D.M.D. degree from Tufts College Dental School in 1939. He became a citizen of the United States in 1940. Dr. Bibby held several hospital and teaching appointments in New Zealand before he came to this country to become a Rockefeller Dental Fellow at the University of Rochester in 1930. In 1936 he became assistant professor of dentistry at the University of Rochester, and in 1940 became dean of Tufts College Dental School and professor of bacteriology in Tufts Medical and Dental Schools. At the present he is director of the Eastman Dental Dispensary and professor of dentistry at the University of Rochester. He is a member of the usual dental societies and research groups, holding office and committee positions in several of these. He received the Tufts College Alumni Distinguished Service Award for 1947, and the Alpha Omega Distinguished Service Award for 1949. Currently, he is vice-president of the International Association for Dental Research. He has accomplished considerable research on dental problems, notably with investigations on the subject of sodium fluoride.

LEVON M. SAGHIRIAN, Philadelphia. ("Pocket Elimination by Electrosurgical Gingivoplasty," Thursday, June 2, 10: 00. Urban Room.) Dr. Saghirian is a graduate of the School of Dentistry, University of Pennsylvania, 1924. He was on active duty in the USNR as Lt. Comdr. from 1943-1946, being stationed at the U. S. Naval Hospital, Farragut, Idaho. He is an associate in stomatology, Graduate School of Medicine, University of Pennsylvania, and a staff member of the Graduate Hospital since 1933. He is a member of the usual local, state, and national dental organizations as well as several anesthesia and periodontia groups. A frequent contributor to the literature, a paper of his was published in the December, 1948, issue of this JOURNAL.

JOHN W. GELLER, Indianapolis. ("Complete Denture Service," Thursday, June 2, 11: 00, Urban Room.) Dr. Geller has been in private practice since 1932 when he was graduated from the Indiana University School of Dentistry. In addition to his regular dental society affiliations, he is a member of the American Denture Society, the American Academy of Plastic Research, and is president-elect of the American Denture Society. He is director of several study groups in Indianapolis and has been lecturing extensively since 1935. In his presentation he will consider

the outline form of both upper and lower dentures, immediate dentures, vertical relation, stabilized bases, the Terrell instrument, and psychological approach to denture patients.

EDWARD J. RYAN, Evanston, Illinois. ("Personality Types Among Dental Patients," Thursday, June 2, 2: 30, Urban Room.) Dr. Ryan, editorial director of Oral Hygiene Publications including *Oral Hygiene* and *The Dental Digest,* is well known to most dentists. He was graduated from the University of Illinois College of Dentistry in 1921; received his B.S. degree from the Illinois Institute of Technology in 1924; he was a graduate student at Northwestern's Medill School of Journalism in 1926 and 1927. He has been an instructor and associate in operative dentistry and oral surgery at the University of Illinois. He holds membership in many dental, historical, and medical societies, and has held offices in the Chicago Dental Society, Illinois Dental Society, and the ADA. He is the author of numerous articles on dental economics, practice management, and on identification from dental records. His most recent publication on the topic he will discuss was "Psychobiologic Foundations in Dentistry."

S. CHARLES BRECKER, New York. ("The Porcelain Jacket Crown on Malposed, Malaligned and Abnormally Spaced Teeth," Thursday, June 2, 3: 30, Urban Room.) Dr. Brecker is a graduate of the University of Pennsylvania; a former assistant professor of operative dentistry at New York University Dental School; lecturer and essayist on the porcelain jacket crown and bridgework; at present he is a member of the faculty in charge of special post-graduate work in fixed bridge construction of the First District Dental Society of New York. He will discuss, from the standpoint of the general practitioner, the treatment planning of the following teeth for porcelain crowns: the mal-turned tooth, abnormally overlapped tooth, lingually-locked tooth, protruding tooth, large median diastema, multiple spaced teeth, close-bite cases, and mal-formed teeth. Kodachrome slides of practical cases of each of the above mentioned teeth and the type of preparation advocated will supplement the lecture. Dr. Brecker is prepared to present the results of his progress in this field which will assist in eliminating many of our errors through a new and unusual approach to our porcelain problems.

B. F. SAPIENZA, Birmingham, Ala. ("Discursive Thoughts Concerning Fixed Bridge Restorations," Friday, June 3, 10: 00, Urban Room.) Dr. Sapienza entered the Alabama Polytechnic Institute (Auburn) in 1914, later he decided to study dentistry and was graduated from the University of Buffalo School of Dentistry in 1920. Since 1928 his practice has been limited to restorative dentistry. He has been a frequent lecturer and clinician before district, state, and national dental societies since 1930.

JULES W. LEAF, New York. ("Precision and Semi-precision Attachment Partial Denture Construction," Friday, June 3, 11: 00, Urban Room.) Dr. Leaf is assistant professor in the crown and bridge department and member of the staff of the Post-graduate Division of New York University College of Dentistry; he is also a member of the post-graduate staff of the First and Second District Dental Societies. He plans to present a new approach to the construction of partial dentures. Also he will explain an improved bio-mechanical design at a reduced cost of construction in an endeavor to bring a better restoration to more patients. Diagnosis, treatment planning, and the advantages and disadvantages will be discussed.

TABLE CLINIC PROGRAM

Wednesday Morning, June 1, 9: 00-12: 00

URBAN ROOM

(The clinic number in this listing will correspond to table number of the clinic being presented in the various rooms on the 17th Floor.)

Periodontia Section:

1. Ross W. Steven—"Mal-Occlusion and Treatment."
2. L. S. Fletcher—"Full Denture Construction."

X-Ray Section:

3. J. C. Eselman—"The Value of Dental Radiographs in Oral Diagnosis."
4. C. R. Fricke—"X-Rays in Dentistry."
5. George Schugar—"Photographic X-Rays."

Pedodontia Section:

6. C. W. Hagan—"Factors Which Govern Cavity Preparation in Primary Teeth."
7. Walter S. Weisz—"An Effective Caries Preventive Program."
8. Geraldine M. Fay—"Easily Constructed Functional Space Maintainer."
9. Mervin L. Binstock—"Management of Fractured Incisors."

Crown and Bridge Section:

10. William C. Murphey—"Principles of Crown and Bridge Construction."

Operative Section:

11. A. J. T. Barton—"Amalgam."

Endodontia Section:

12. H. A. Anderson—"Practical Root Canal Treatment."
13. Morris M. Glasser—"Drugs in Root Canal Therapy."

Pittsburgh Dental Assistants Association Section:

14. Georgene Wilhoit and Ruth Zufall—"Entertaining the Child Patient."
15. Mildred Niedergal—"Psychology and Prosthesis."
16. Evelyn Brett—"Care of Angles and Handpiece."
17. Virginia Daer—"Sterilization."
18. Stellamae Cramer—"Tooth Brush Drill."
19. Ruth E. Scherrbaum—"Medical Co-operation."

MONONGAHELA ROOM

Ceramics Section:

20. C. B. Walton—"Porcelain and Acrylic Veneer Crowns."
21. R. Ribisl—"Use of Stock Acrylic Teeth for Acrylic Jackets or Davis Crowns."
22. C. S. Cuden—"The Porcelain Inlay."

Prosthesis Section:

23. R. W. Roden—"Wrought Wire Clasp Construction."
24. E. T. Lewis—"Full Upper Denture Technique."
25. W. Glenn Worstell—"Three Major Considerations in Full Denture Construction."
26. Albert L. Finlay and Charles L. Cuden—"Muco-Seal Denture Technique."
27. Adolph Biel—"Root Tip Removal of Maxillary Molars—Ridge Preparation."
28. Vincent Biel—"Quick Permanent Plastic Repairs."
29. E. C. Nixon—"Dr. Fred Meyers' Technic of Balanced and Functional Occlusion."

Orthodontia Section:

30. Joseph L. Polk—"Alignate Impressions—A Scientific Approach."
31. W. M. Thompson, Jr.—"Some Present Day Concepts in Orthodontia."

Helpful Hints Section:

32. George T. Gregg—"A New Idea in Precision Attachments for Bridgework and Partial Dentures."
33. Bernard Hetrick—"Discussion of Polymerization of Acrylic Resin Denture Base."
34. Marvin Sniderman—"Practical Prescription Writing for the Dentist."

Pennsylvania State Dental Hygienists Association Section:

35. Anne Faivre—"Visual Education Aid."
36. Alice Stone—"Dental Hygiene Program in Industry."
37. Dorothy Clark—"The Hygienist as a Practice Builder."
38. Ruth Shenkle—"The Glorified Cotton Roll."
39. Margaret Dillon—"Demonstration of the Topical Application of Sodium Fluoride."

PARLOR B-C

Inlay Symposium—Pittsburgh Dental Research Club Section:

Moderator: Walter Singley, D.D.S.

Clinicians: W. G. Bothwell, Perry Swanson, E. A. Seager.

This symposium will be given at 10: 00 A. M. and repeated at 11: 00 A. M. and 12: 00 Noon.

Cancer Section:

PARLOR E-F

Leo Shonfield—"Mucous Membrane Lesions."

Kurt J. Odenheimer—"Malignant and Non-Malignant Lesions of the Mouth."

ALLEGHENY ROOM

Exodontia and Oral Surgery Department, University of Pittsburgh, School of Dentistry Section:

40. Harry W. Archer—"Oral Pathology."
41. Sidie R. Bononi—"Anesthesia of Maxilla and Mandible."
42. Leonard M. Monheim—"General Anesthesia for Oral Surgery."
43. Anthony F. Parella—"Alveolectomy."
44. Anthony W. Ruggiero—"Extraction of Teeth."
45. Roy A. Smith—"Incisions and Sutures."
46. Sidney S. Spatz—"Post-Operative Infections."
47. Robert M. Verklin—"Pre-Operative and Post-Operative Care of the Patient."
48. Donald E. Wagner—"Control of Hemmorhage."
49. Hollis E. Zwicker—"Diagnosis and Treatment of Dry Socket."

FORT PITT ROOM

Western Pennsylvania Society of Oral Surgeons Section:

50. E. E. Black—"General Anesthesia for the Oral Surgeon."
51. H. K. Elder—"Valve and Use of X-Rays in Oral Surgery."
52. R. J. Englert—"Helpful Hints in Exodontia."
53. J. A. Gardner—"Fractures."
54. DeWitt Hall—"Pre- and Post-Operative Treatments."
55. A. H. Hartman—"Pre- and Post-Operative Medications."
56. A. J. Hyde—"Newer Hemostatic Agents."
57. C. C. Marshall—"Local Anesthesia."
58. R. D. McClain—"Surgical Preparation of Mouth for Dentures."
59. Wm. D. McClelland—"Relationship Between General Practitioner and Specialist."
60. Herman Meyers—"Apicoectomy."
61. Homer B. Porritt—"Fractures."
62. Reed P. Rose—"Local Anesthesia."
63. Gaylord E. Wolf—"Radiographic Study of Exodontia Problems."
64. H. J. Zubrow—"Diagnosis and Treatment of Post-Operative Infections."

LIMITED ATTENDANCE CLINICS

These clinics will be sponsored by the Periodontology Club of Western Pennsylvania. They will be presented Friday afternoon, June 3, at 1: 30 P. M. in Parlor E-F.

"Examination, Charting and Diagnosis"
Geo. M. Stewart-Thos. R. Dutkovic

"Occlusal Equilibration"
Max Silverman-Morton T. Boggs, Jr.

"Instrumentation and Subgingival Curettage"
Charles Goldstein-Harry S. Kopsofsky

"Gingivectomy"
Frank Iams-Wm. C. Booth-L. S. Fletcher

"Tooth Brush Technique and Home Care"
Ruth Semenow-Paul Foreman

PITTSBURGH DENTAL ASSISTANTS ASSOCIATION

Wednesday, June 1

9:00-12:00 TABLE CLINICS. (See Table Clinic Program, page 184, Clinics 14-19 inclusive.)

1:00 P.M. CALL TO ORDER ..... Alicia B. King, *President*

ADDRESS OF WELCOME ..... Genevieve Conforti, *Vice-President*

1:30 "COMMON MOUTH LESIONS." (Illustrated.)
Norman C. Ochsenhirt, M.D., Pittsburgh.

3:00 "MANUFACTURING OF X-RAY FILMS." (Illustrated.)
Silas Titus, I. E. Du Pont Company.

Thursday, June 2

12:30 P.M. LUNCHEON ..... Hotel Sheraton
(Make reservations early. $2.50 per plate.)
Guest Speaker: Bruce D. Forsyth, Assistant Surgeon General, United States Public Health Service.
There also will be entertainment.

BOARD OF TRUSTEES

William Penn Hotel **Suite 566-68-70**

Tuesday, May 31—2:00 P. M.

Other meetings will be held at times to be designated by the Board

HOUSE OF DELEGATES

William Penn Hotel **Pittsburgh Room**

Wednesday, June 1—2:00 P. M.

Thursday, June 2—10:00 A. M.

Thursday, June 2—2:00 P. M.

The list of delegates and alternates to the 1949 meeting will be found on pp. 189-190

PENNSYLVANIA STATE DENTAL HYGIENISTS ASSOCIATION

27th Annual Meeting

William Penn Hotel **Pittsburgh**

WEDNESDAY, JUNE 1

8: 30 A. M. REGISTRATION ..... 17th Floor

9: 00-12: 00 TABLE CLINICS.
See Table Clinic Program, page 185, Clinics 35-39.

1: 30 P. M. GENERAL SESSION ..... Forum Room
Invocation—Rev. Lufay Anderson Sweet.
Address of Welcome—Lt. Col. J. S. Oartel, *President*, Pennsylvania State Dental Society.
Address of Welcome on Behalf of the Western Pennsylvania Dental Hygienists Association—Elsie Loebig, R.D.H., *President.*
Response to Address of Welcome—Ruth Heck, R.D.H., *President-elect*, Pennsylvania State Dental Hygienists Association.

2: 30 PRESIDENT'S ADDRESS ..... Esther Ellis Doyle, R.D.H., Philadelphia
Delegates and committee reports.
Business meeting.

3: 30 "FLUORINE IN RELATION TO DENTAL HEALTH."
Basil G. Bibby, D.M.D., Rochester, N. Y.
(See general program of the State Society.)

THURSDAY, JUNE 2

10: 00 A. M. "DENTAL HEALTH EDUCATION."
Milton E. Nicholson, D.D.S., Pittsburgh.

11: 00 "FOOD, FUN, AND FINESSE."
Virginia Wald, State Nutritionist.

1:00 P. M. LUNCHEON ..... Oliver Building Restaurant
"Hobbies as a Profession"—Edwin Rowlands, noted autograph collector and hobby expert.

3: 00 BUSINESS MEETING.

FRIDAY, JUNE 3

8: 30 A. M. BREAKFAST CONFERENCE ..... Grill, Wm. Penn Hotel

10: 00 "DENTISTRY—AS GREAT AS WE MAKE IT."
Kurt J. Odenheimer, D.D.S., Pittsburgh.

11: 00 "FLUORIDES OR FORCEPS."
Edwin C. Drescher, M.D., M.P.H., Pittsburgh.

1: 30 P. M. BUSINESS MEETING AND INSTALLATION OF OFFICERS.

DELEGATES TO THE 1949 ANNUAL MEETING

◆

FIRST DISTRICT

Robert Adams
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D. S. Gardner, Jr.
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R. W. Jewells
L. E. Jordan
Harry N. Maslak

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Howard E. Griesemer
Frederick H. Hoeffer
Harry L. Logan
C. P. Marbarger

FIFTH DISTRICT

Richard W. Bolton
Charles S. Gaige
Thomas B. Garvey
R. W. McEldowney
D. M. McHenry
Roy P. May
Carey O. Miller

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Earle A. Brown
J. E. Whittaker

SEVENTH DISTRICT

John K. Bonebreak
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Zane A. W. Green
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J. L. Porias
Charles R. Wilson

EIGHTH DISTRICT

J. Russell Elliott
Edward S. Hauber

NINTH DISTRICT

Allan A. Booth
Carlton F. Cantor
Robert L. DeShong
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TENTH DISTRICT

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W. Earle Craig
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Eugene M. Gahles
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M. O. Hoover
R. K. Hyde
Samuel Lichter
John S. Lloyd
T. F. McBride
H. A. McCandless, Jr.
John F. McParland
Harry C. Metz
Harold W. Moore
Wm. C. Murphey
Richard P. Ribisl
Robert H. Shoop
Isaac Sissman
T. R. Snyder
Roland M. Swank
John A. Weyandt
Alfred C. Young

ALTERNATES TO THE 1949 ANNUAL MEETING

◆

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Herbert E. Cohen
James W. Craig
Eli Edelman
Charles P. Egoville
Hugh B. Flanigan
J. Wallace Forbes
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Carl M. Graul
Ralph L. Hart
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C. E. McMurray
M. B. Markus
Joseph V. Masino
Jonathan K. Miller
Robert H. Nones, Jr.
Harry Nosanow
E. Julian Ohn
Sumner Pallardy
John B. Price
Michael F. Quinn, Sr.
Nathan Raff
D. H. Simmerman
E. Howell Smith
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O. Reynold Hoch
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Seymour Pollan

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Paul W. Angstadt
Clarence S. DeLong
Ralph E. Raker

FIFTH DISTRICT

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C. V. Halpin
J. Edgar MacBride
Orvin E. Reidel
Max Shively
W. S. Simons

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D. E. Waltz

SEVENTH DISTRICT

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William O. Hershey
Roswell L. McKim
D. R. L. Robison
Donald R. Wolford

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K. J. Kilbury
Claire Lathrop

NINTH DISTRICT

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Glen S. Phillips
A. G. Reynolds
Milo M. Spencer
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Charles B. Pipes
P. D. Pollock
Elmer R. Robb
Frederick C. Robinson
Edwin A. Saeger
John F. H. Speer
Richard H. Terrana

The Mandibular Injection

◆

Anatomical Measurements to Determine the Relationship of the Depth of Concavity of the Anterior Border of the Ramus of the Mandible to the Lingula and the Mandibular Sulcus, as an Aid in the Administration of Mandibular Conduction Injections for Local Dental Anesthesia

◆

REED P. ROSE, B.S., D.D.S.

INTRODUCTION

OVER half a century ago a physician, William Halsted, administered the first mandibular injection, using a 4 per cent solution of cocaine. During these intervening years much has been written and said relative to mandibular injection technique. There have been many variations in technique advanced and suggested, but little definite, anatomical research of an extensive and accurate nature has been conducted to establish beyond debate the anatomical measurements which might indicate a proper and universal technique. Perhaps the most authoritative study conducted upon the subject is the work done by Simon and Komives.[1] Their conclusions, however, while of inestimable value, left the subject in much the same status as it was originally.

The most commonly used and most universally accepted techniques of injection for mandibular nerve anesthetization are the classical Fischer "One-Two-Three" technique and the so-called "direct thrust" or "direct approach" technique. It is interesting to note that in these later years one of the stanchest advocates of the Fischer technique has changed to the direct thrust technique.[2] This fact is additional evidence that the general trend is away from the Fischer and toward the direct approach technique.

A specific and detailed comparison between the Fischer and direct approach technique seems unnecessary since so much has been written and published in the literature. It has been apparent in teaching several hundreds of students that the direct approach technique is less hazardous, more readily learned, and has been used with fewer undesirable post-injection complications by the uninitiated and inexperienced student. The anatomical and surgical considerations of placement of the needle in such a manner as to avoid, insofar as possible, trauma to the temporalis and pterygoideus muscles, to the periosteum, to the parotid gland and the sphenomandibular ligament are far superior in the direct approach technique than they are in the Fischer technique. It should be commonly understood that it is unnecessary to make a separate, distinct solution deposition for the anesthetization of the lingual nerve, aside from the principal solution deposition made for the anesthetization of the mandibular nerve trunk. It is an anatomical fact that the course of the lingual nerve

is sufficiently close to that of the mandibular (inferior alveolar) nerve to render such separate deposition illogical and unnecessary. It is also a common failing in administering regional anesthesia to the mandibular area, when the Fischer technique is used, that the final position attained by the needle-point is at a too great depth. Since more than 90 per cent of mandibular injection failure may be attributed to needle insertions made too low, or at too great a depth, the possible high incidence of failure due to the precepts of the Fischer technique is evident. This is particularly true in the hands of the relatively inexperienced, or those whose daily practice does not necessitate a multiplicity of mandibular injections.

It is apparent, on close perusal of the commonly used textbooks, that the descriptions of these two above mentioned techniques suggest five generalized methods of determining the location of the mandibular sulcus, namely:

1) Placing the ball, or tip of the forefinger in the depth of concavity of the retromolar fossa, with the fingernail over the internal oblique ridge.[7]
2) Location of the needle insertion point "at a height midway between the occlusal planes of the upper and lower teeth when the mouth is opened to its fullest extent." [9]
3) Using a line drawn between the depth of concavity of the anterior and posterior borders of the ascending ramus.[11]
4) Using a point one centimeter above the occlusal surfaces of the mandibular molars.[10]
5) Placement of forefinger at apex of retromolar triangle with fingertip over the internal oblique line and the base, or shaft of the finger lying against the buccal surfaces of the mandibular teeth, and parallel to the mandibular occlusal plane.

The most markedly apparent criticism of the above listed methods is the lack of scientific basis for the assumption that the needle-point will almost invariably reach a point sufficiently close to the mandibular sulcus to produce satisfactory mandibular anesthesia. The work of Simon and Komives[1] and Nevin and Puterbaugh[2] may again be referred to in order that the fact may be established that none of these techniques will prove satisfactory in the majority of cases when definite osseous measurements of the mandible are made. It is therefore true that these techniques incorporate a high percentage of error which is readily translated into a high percentage of injection failure. The fact that any notable degree of success is secured is merely evidence that anesthesia has been secured by a fortunate diffusion of the solution rather than by correct and accurate technique.

Some years ago the statement made by Nevin and Puterbaugh[2] that "the deepest point of the depression on the external oblique line, is on a line just above the lingula crossing the mandibular sulcus . . . "suggested the possibility of the establishment of a definite anatomical key to consistent success in the mandibular injection. Unfortunately, this statement is not pursued to its ultimate possibilities by the authors of that text. They suggest its usage, apparently, when the lower molars and bicuspids are not in normal position and occlusion, and give no scientific data to substantiate their statement. It was with the thought that this depth of concavity of the anterior border of the ascending ramus might have a relatively constant anatomical relationship to the position of the lingula and the mandibular sulcus that an investigation was instituted to determine, by actual measurement of a large number of mandibles, the possibility of assembling sufficient data of an exact nature to prove or disprove the value of this so-called "key to the mandibular injection." While this research was being conducted, a "direct approach" technique[12] was evolved, using the depth of concavity of the anterior border of the ascending ramus and its

relationship, on a horizontal plane parallel to the mandibular occlusal plane, to the lingula and mandibular sulcus, as a guide or key, for needle insertion. This mandibular injection technique was used in teaching, in clinical and in office practice on many thousands of cases with an extremely high percentage of success, over a period of the past decade.

METHOD OF INVESTIGATION

The method of investigation instituted to determine the possible value of the depth of concavity of the anterior marginal border of the ascending ramus, as a constant guide for proper needle insertion, was the measurement of 700 dry mandibles. Five hundred and five of the specimens measured are the property of the Hamann Museum, Department of Anatomy, Western Reserve University; one hundred and forty-three are the property of the Department of Anatomy, School of Dentistry, University of Pittsburgh; fifty-two are the property of the Department of Anatomy, School of Medicine, University of Pittsburgh. It was through the courtesy and kindness of Dr. Normand L. Hoerr, Dr. Thurlow W. Brand, and Dr. Davenport Hooker, respective departmental heads of the above named institutions, that the research conducted (in 1939-40) was made possible. As noted above, the majority of the specimens measured were from the Hamann Museum at Western Reserve University. The skeletal collection there represents the largest well-documented collection of its kind in the world. These 505 Hamann Museum specimens are adult whites. Approximately 5 to 7 per cent of them are female and the balance are male specimens. The University of Pittsburgh specimens measured are approximately 60 per cent Negro and are 100 per cent male. Most of the specimens measured had badly impaired masticatory apparatuses. An attempt was made to measure as many cases with a sufficient number of remaining teeth as to constitute a fairly complete complement and in such number as to be comparable to the number of completely edentulous cases measured. It must be recognized that all the mandibles measured are from that stratum of society which society is most anxious to forget. They represent the floaters, the drifters, the nameless and outcasts whose bodies ultimately come to rest, upon the dissection table, or in the anatomical or anthropological museum. The fact that most of them have suffered from dietary deficiencies, lack of proper dental and medical care, and have been deprived to some great extent of the benefits and normal luxuries common to the individual in average circumstances, may influence the findings resulting from this research to some extent. Conversely, it may be considered that such material may have a wider range of variability and therefore be of greater value for our purpose because of that very fact.

METHOD OF MEASUREMENT

The method of measurement required the taking of eighteen separate dimensions and the recording of 11,900 measurements. The depth of concavity of the anterior borders of the ascending rami of each mandible was marked by a point, after being determined by finger palpation. The outlines of each of the mandibular sulci were marked by a sharply penciled line. The mandible was then mounted on a plate glass slab, the surface of which was referred to as the "base plane." Two small mounds of plasticine, or modeling clay, were used to support and hold the mandible in position. The occlusal plane was established, actually or imaginarily in edentulous cases, and positioned in a plane parallel with the base plane and in such manner that the angles of the ascending rami were equidistant above the base plane. The dimensional

distance from the base plane to the angles of the rami were recorded for each specimen. All measurements were made on both rami of the mandibles and separately recorded. A pair of dividers were used to mark the imaginary horizontal plane across the lingual surface of each of the rami. The location of the horizontal plane, as marked by the dividers, was originated from the point marking the depth of concavity of the anterior border of the ascending ramus. Since there was always present the possibility of variation in the length of the rami of the same specimen, and in the positional location of the point marking the depth of concavity on the right and left rami of any given specimen, the horizontal planes were established, marked and the dimensions recorded individually. The mandible was then lifted from the base plane and the distance of the horizontal plane above, or below, the root of the lingula was measured. The distance from the horizontal depth-of-concavity plane to the superior border of the mandibular sulcus was measured. Other dimensions taken and recorded were: the length of the mandibular sulcus, from its superior border to the point of the mandibular canal orifice; the width of the mandibular sulcus at the widest point; the distance from the root of the lingula to the internal oblique line; the distance from the internal oblique line to the anterior border of the ascending ramus; the distance from the anterior to the posterior border of the ascending ramus at the points of greatest concavity, or, the width of the ramus.

DISCUSSION OF ERROR

It is undeniably true that an element of error has been incorporated, since it is impossible to establish these measurements upon an exact mechanical basis. When the finger tip was used to locate the depth of concavity of the sharp, marginal, edge of the anterior border of the ascending ramus, the human equation entered and incorporated a possible percentage of error. However, it is true that the operator, in administering local anesthesia to the patient, is confronted with the same factor in determining the needle puncture point. This fact seems to equalize and minimize the importance of the error. The amount of error in making the determination of this point on the dry mandible is considerably less than in the mouth of the living patient, since it may be actually seen and felt on the dry specimen. In the mouth it may be located only by the sense of touch. The sharp, marginal, anterior border of the ascending ramus, at this point, of greatest concavity is covered by a thin layer of mucoperiosteum and lends itself readily to discovery by the palpating finger tip. A small percentage of patients will present with an abnormal development of the temporalis muscle which is evidenced by a low insertion of the medial fibers of this muscle. This will afford some slight difficulty, but will rarely entirely obscure the bony landmark underlying the soft tissues.

Another factor of error occurs in the mounting of the specimens on the base plane and the establishment of an hypothetical mandibular occlusal plane. The control used to determine this error would be a comparison between the measured distance from the base plane to the imaginary depth-of-concavity plane on the right and left sides. Since no effort was made to control, or equalize, these two distances by preliminary measurement of them during the mounting of the specimen, and since the average variational factor between the right and left sides is 0.1 mm., it is apparent that the hypothetical mandibular occlusal planes established during the taking of the measurements constituted reasonably accurate pre-

determination of these mandibular occlusal planes.

The outlines of the mandibular sulci were carefully marked by a fine pencil line before the specimens were mounted. Most of the mandibles show a definite outline of the mandibular sulcus. An approximation was made in those few cases on which the outlines were of an indefinite nature.

The errors in taking the other dimensions were minimal. A Boley millimeter gauge with a Vernier attachment was used. When the Vernier read less than one-half millimeter, a round number was recorded. When the reading was equal to one-half, and less than a whole number, the half-millimeter was recorded.

ANALYSIS OF MEASUREMENTS

The complete analysis, as evolved from the recorded measurements, is as follows:

1. *Distance from Base Plane to Angle of Ramus at Inferior Border of Mandible:*

	Extremes:	1.0 to 25.0 mm.
	Average:	14.9 mm.

2. *Distance from Base Plane to Depth-of-Concavity Plane:*

Right Ramus:	Extremes:	32.0 to 65.0 mm.
	Average:	52.0 mm.
Left Ramus:	Extremes:	32.0 to 64.0 mm.
	Average:	52.1 mm.
Aggregate:	Extremes:	32.0 to 65.0 mm.
	Average:	52.0 mm.

Greatest Variant between rami on same specimen: 5.0 mm.

3. *Length of Mandibular Sulcus from Mandibular Canal Orifice to Superior Border of Mandibular Sulcus:*

Right Ramus:	Extremes:	9.0 to 31.0 mm.
	Average:	20.6 mm.
Left Ramus:	Extremes:	11.0 to 31.0 mm.
	Average:	20.5 mm.
Aggregate:	Extremes:	9.0 to 31.0 mm.
	Average:	20.6 mm.

Greatest Variant between rami on same specimen: 8.0 mm.

4. *Distance from Depth-of-Concavity Plane to Superior Border of Mandibular Sulcus:*

Right Ramus:	Extremes:	0.0 to 17.0 mm.
	Average:	5.1 mm.
Left Ramus:	Extremes:	0.0 to 17.0 mm.
	Average:	5.9 mm.
Aggregate:	Extremes:	0.0 to 17.0 mm.
	Average:	5.5 mm.

Greatest Variant between rami on same specimen: 9.0 mm.

Right Ramus:	Total Measured	700
	Minus	3,468.0 mm. — (670)
	Plus	34.0 mm. — (22)
	Plus or Minus 0	0.0 mm. — (8)
	Totals	3,502.0 mm. — (700)
	Average of 3,502.0	5.0 mm.
	Average of 3,468.0	5.1 mm.
	Differential	0.1 mm.

Left Ramus:	Total Measured	700	
	Minus	4,098.5 mm.	— (687)
	Plus	15.5 mm.	— (11)
	Plus or Minus 0	0.0 mm.	— (2)
	Totals	4,114.0 mm.	— (700)
	Average of 4,114.0	5.8 mm.	
	Average of 4,098.5	5.9 mm.	
	Differential	0.1 mm.	

Dimensional Distribution:

1,003 specimens, or 71% within 3.0 to 8.0 mm. limits.
1,296 specimens, or 92% within 1.0 to 10.0 mm. limits.
1,372 specimens, or 100% within 0.0 to 17.0 mm. limits.

5. *Distance from Root of Lingula to Depth-of-Concavity Plane:*

Right Ramus:	Extremes:	0.0 to 9.0 mm.
	Average:	3.0 mm.
Left Ramus:	Extremes:	0.0 to 9.5 mm.
	Average:	2.4 mm.
Aggregate:	Extremes:	0.0 to 9.5 mm.
	Average:	2.7 mm.

Greatest Variant between rami on same specimen: 4.5 mm.

Right Ramus:	Total Measured	700	
	Plus	1,973.3 mm.	— (644)
	Minus	57.5 mm.	— (31)
	Plus or Minus 0	0.0 mm.	— (25)
	Totals	2,031.0 mm.	— (700)
	Average of 2,031.0	2.9 mm.	
	Average of 1,973.5	3.0 mm.	
	Differential	0.1 mm.	
Left Ramus:	Total Measured	700	
	Plus	1,508.0 mm.	— (628)
	Minus	71.0 mm.	— (37)
	Plus or Minus 0	0.0 mm.	— (35)
	Totals	1,579.0 mm.	— (700)
	Average of 1,579.0	2.2 mm.	
	Average of 1,508.0	2.4 mm.	
	Differential	0.2 mm.	

Dimensional Distribution:

1,161 specimens, or 83% within 0.0 to 4.0 mm. limits.
1,267 specimens, or 90% within 0.0 to 5.0 mm. limits.
1,332 specimens, or 95% within 0.0 to 9.5 mm. limits.
68 specimens, or 5% below depth-of-concavity plane.

6. *Width of the Mandibular Sulcus at Widest Point:*

Right Ramus:	Extremes:	5.0 to 17.0 mm.
	Average:	9.2 mm.
Left Ramus:	Extremes:	6.0 to 16.5 mm.
	Average:	9.3 mm.
Aggregate:	Extremes:	5.0 to 17.0 mm.
	Average:	9.3 mm.

Greatest Variant between rami on same specimen: 5.0 mm.

7. *Distance from Root of Lingula to Internal Oblique Line:*

Right Ramus:	Extremes:	6.0 to 19.0 mm.
	Average:	11.4 mm.
Left Ramus:	Extremes:	6.5 to 21.0 mm.
	Average:	11.3 mm.
Aggregate:	Extremes:	6.0 to 21.0 mm.
	Average:	11.4 mm.

Greatest Variant between rami on same specimen: 3.5 mm.

Dimensional Distribution:

693 specimens, or	49%	within	10.0 to 12.0 mm. limits.
1,177 specimens, or	80%	within	9.0 to 14.0 mm. limits.
1,400 specimens, or	100%	within	6.0 to 21.0 mm. limits.

8. *Width of Ascending Ramus at Points of Greatest Concavity:*

Right Ramus:	Extremes:	19.5 to 42.5 mm.
	Average:	30.4 mm.
Left Ramus:	Extremes:	19.0 to 42.0 mm.
	Average:	30.4 mm.
Aggregate:	Extremes:	19.0 to 42.5 mm.
	Average:	30.4 mm.

Greatest Variant between rami on same specimen: 5.5 mm.

Dimensional Distribution:

790 specimens, or	56%	within	28.0 to 33.0 mm. limits.
1,217 specimens, or	86%	within	25.0 to 35.0 mm. limits.
1,400 specimens, or	100%	within	19.0 to 42.5 mm. limits.

9. *Distance from Internal Oblique Line to External Oblique Line:*

Right Ramus:	Extremes:	0.5 to 9.5 mm.
	Average:	4.0 mm.
Left Ramus:	Extremes:	0.5 to 11.5 mm.
	Average:	4.0 mm.
Aggregate:	Extremes:	0.5 to 11.5 mm.
	Average:	4.0 mm.

Greatest Variant between rami on same specimen: 4.0 mm.

DISCUSSION OF MEASUREMENTS

A discussion of the measurement data, giving a brief elaboration upon each of the listed dimensions, is as follows:

1) The wide dimensional range of the measurement from the base plane to the angles of the rami indicates the wide range of variation in relationship of the hypothetical occlusal plane of the human mandible to an imaginary plane established by the inferior borders of the mandible. This variation may be best visualized as an angle, having its point of origin where the symphysis contacts the base plane: one leg of the angle is the base plane, the other leg is the imaginary plane of the inferior borders of the body and rami of the mandible. The angle will vary from the acute stage when the minimal measurement of 1.0 mm. is present to a markedly obtuse stage when the maximal measurement of 25.0 mm. is present.

2) The measurement recording the distance from the base plane to the depth of concavity plane is a relative control over dimension 1). It is also a control on the relative accuracy of the established hypothetical occlusal planes. If there had been a marked variation between the measurements

on the right and left rami, then the imaginary occlusal planes would have been improperly established, or there would have been a marked discrepancy between the relationship of the depths of concavity of the right and left rami.

3) The length of the mandibular sulcus also varies markedly. This anatomical fact is an influential factor in the mandibular injection in that the operator attempts to bring the needle point to rest at the anterior margin of the sulcus, or to rest at a point within the boundaries of the sulcus. Many specimens were measured in which the relatively short overall length of the sulcus indicated a definite limitation of the possible needle path. This aspect will be further discussed under paragraph 4).

4) The measurement indicating the distance from the depth-of-concavity plane to the superior border of the mandibular sulcus, when added to dimension 5), which is the distance from the root of the lingula to the depth-of-concavity plane, results in a dimension which defines the vertical limitations of the possible needle path for successful injection results. If the average of this dimension 4) is added to the average of dimension 5), the total average sum is 8.2 mm. This average sum indicates the relatively narrow vertical dimension within which the needle path must be controlled.

5) The distance from the root of the lingula to the depth-of-concavity plane has a relatively low variant factor. Eighty-three per cent of the specimens measured were found to be from 0.0 mm. to 4.0 mm. *above* the root of the lingula; ninety per cent lie within the 0.0 to 5.0 mm. dimension *above* the plane; five per cent varied from 5.0 to 9.5 mm. above the plane; five per cent (68 of 1,400 rami) were found to lie below the depth-of-concavity plane at an average distance of 1.8 mm. The fact that this depth-of-concavity plane may be said to be 90 per cent effective renders it important as a guide to proper needle insertion and position. The 10 per cent variant factor includes those cases in which the needle insertion would be too high, or too low. It is therefore necessary that this guide be supplemented by anatomical knowledge, operative ability, and clinical experience which make possible the recognition of such mandibular abnormality when it is encountered.

6) The width of the mandibular sulcus varies from 5.0 to 17.0 mm. The average width was 9.3 mm. Since this dimension was taken at the widest point, and at right angles to the long axis of the sulcus, it is inaccurate to use it in conjunction with dimension 7) as a possible needle depth gauge. However it does indicate the extreme variation in the width of the sulcus and its implication as to the variation in needle insertion depth.

7) The distance from the internal oblique line to the root of the lingula is most inconsistent. The dimensional distribution, according to percentage of specimens measured is emphatic evidence of the necessity to judge needle insertion depth only by the anatomical structure of the individual case.

8) The width of the ascending rami measured also lends greater emphasis to the statements made relative to the marked dimensional variations of the mandible, and to the statements made relative to the inadvisability of advocating an inflexible needle insertion depth.

9) It was originally believed that it might be possible to correlate ramus

width, distance from external to internal oblique line, and distance from internal oblique line to the root of the lingula, in such manner as to evolve a controlled, or a relative needle insertion depth. The wide range of dimensions recorded indicated the impossibility and inadvisability of attempting such procedure.

SUMMARY OF MEASUREMENTS

A further summary and general résumé of the factors influencing mandibular injection technique follows:

1) The width of the ascending ramus varies from 19.0 mm. to 42.5 mm. The average width is 30.4 mm.
2) The width of the mandibular sulcus varies from 5.0 mm. to 17.0 mm. The average width is 9.3 mm.
3) The length of the mandibular sulcus varies from 9.0 mm. to 31.0 mm. The average is 20.6 mm.
4) The distance from the root of the lingula to the internal oblique line varies from 6.0 mm. to 21.0 mm. The average is 11.4 mm.
5) The distance of the depth-of-concavity plane *above* the root of the lingula varies from 0.0 mm. to 9.5 mm. The average is 2.7 mm. Eight-three per cent of the specimens measured came within the 0.0 to 4.0 mm. limit, *above* the root of the lingula: ninety per cent of the specimens measured came within the 0.0 to 5.0 mm. limit *above* the root of the lingula; a total of ninety-five per cent of the specimens measured showed the plane *on*, or *above* the lingula root. The remaining 5 per cent were found to have the depth-of-concavity plane crossing the lingual surface of the ramus *below* the root of the lingula. However, the average distance *below* the root of the lingula was only 1.8 mm. for this 5 per cent group which represents 68 of the 1,400 rami measured.
6) The distance from the depth-of-concavity plane to the superior border of the mandibular sulcus varies from 0.0 to 17.0 mm. below this superior border. The average is 5.5 mm.

The most valuable general information derived from these quoted dimensional factors, as related to mandibular conduction anesthesia may be tabulated in outline form, as follows:

1) The human mandible is subject to a wide range of dimensional variation, which must therefore influence any attempt at standardization of injection technique. It is impossible to employ *any* injection technique without the necessary adjuncts of anatomical knowledge and operative judgement and the exercising of their use during each individual injection.
2) The imaginary horizontal depth-of-concavity plane, established from the point of greatest concavity of the sharp, marginal anterior border of the ascending ramus bears a distinct and definite relationship to the lingula and mandibular sulcus, in that they both lie on the same horizontal plane within a dimensional variation of 4.0 to 5.0 mm. Since the factor of deviation from *above* the lingula to *below* the lingula is approximately 5 per cent, and since that 5 per cent factor is minimized by a minor variant factor within itself, it seems logical to assume that this "depth-of-concavity of the anterior border of the ascending ramus of the mandible" may be used to great advantage in locating needle puncture point, and in determining needle position for mandibular conduction anesthesia.
3) The distance from the internal oblique line to the root of the lingula varies markedly (6.0 to 21.0 mm.) This variation necessarily influences the depth of penetration of the needle

during needle insertion. It is irrational and a demonstration of poor surgical judgement to advise a given needle insertion depth for use in all cases. This dimension is a known factor only on the individual case and only at the time of actual injection administration.

INJECTION TECHNIQUE

The correlation and evaluation of the above determined data indicate the following outlined mandibular injection technique:

1) Palpate the external oblique ridge with the fore-finger, in the muco-buccal fold at the region of the first mandibular molar; follow this osseous landmark posteriorly to the anterior border of the ascending ramus, where it becomes continuous with the thin knife-like edge of the anterior border of the ramus; locate the point of greatest depth-of-concavity on this sharp, marginal border with the tip of the palpating finger.
   a) The depth-of-concavity of the anterior border of the ascending ramus is that point of greatest concavity of the thin knife-like edge of the ramus, lateral to the retromolar triangle. It is not to be confused with the depth-of-concavity of the retromolar triangle, which is the retromolar sulcus. This depth-of-concavity of the anterior border of the ramus is a definite, fixed osseous landmark which has a direct relationship to the lingula and mandibular sulcus, in that they lie on the same horizontal plane. It is the "key to the mandibular injection."
2) Parallel the finger with the mandibular occlusal plane and advance it lingually, carefully maintaining the depth-of-concavity plane. Carry the finger tip over the internal oblique line, and then retract buccally to the final position where the finger tip rests on the bony margin of the internal oblique line.
   a) Over-advancement of the finger to the lingual and subsequent retraction permits tensing of tissues preparatory to insertion of the needle.
3) As the finger tip is retracted to its final position, the shaft, or body of the finger should automatically come to rest against the buccal surfaces of the teeth, and lie in a plane parallel to the mandibular occlusal plane. When the mouth is partially, or completely edentulous, this plane and position must be hypothetically established. This finger position is maintained throughout the injection.
   a) Paralleling the finger with the mandibular occlusal plane, while maintaining the depth-of-concavity plane, establishes a psychic, as well as physical guide and control over the vertical angulation of the needle and syringe.
   b) The patient's mouth should be opened as wide as is comfortably possible to provide proper access and to aid in tensing the tissue in the injection area. Tense tissue is the secret of relatively painless needle insertion.
4) Advance the needle and syringe from the opposite side of the mouth, on the depth-of-concavity plane; bisect the positioned finger nail and penetrate the tissue immediately at the tip of the finger. The lateral angle of needle advancement is dependent upon the classification of the ramus angulation in relationship to the body of the mandible. Insert the needle until bone is lightly contacted, then withdraw one or two millimeters away from the bone and slowly deposit the anesthetic solution.
   a) The needle puncture point has

been pre-determined by the procedure followed from establishment of the depth-of-concavity plane. This puncture point determination has been based upon fixed, osseous landmarks. The variations and varieties of soft tissue landmarks render them useless as definite, constant landmarks, but necessary consideration must be accorded the soft tissues at the injection site in order to avoid difficult painful, and improper needle insertion with subsequent undesirable post-injection sequelae.

b) The slight depression, or fold in the soft tissue which lies mesial to the internal oblique line is the pterygomandibular sulcus; beneath the mucous membrane of this sulcus lies the pterygomandibular raphe, which consists of dense, tendon-like tissue. While this soft tissue landmark is most variable in presence or absence, size and extent, it is a soft tissue relationship to needle insertion which must be considered. The needle point, generally speaking in those cases where the depth-of-concavity plane indicates such insertion, is inserted in a posterolateral direction to the depth of this sulcus. If the needle is directed posteriorly, and not postero-laterally, it pierces the dense fibrous tissue of the raphe. This means a difficult and painful needle insertion. However, if the needle is inserted too far laterally, the fibers of the temporalis mus-

FIGURE 1

Determination of depth-of-concavity by finger palpation.

FIGURE 2

Finger in position in depth-of-concavity of anterior border of ascending ramus; relationship of depth-of-concavity plane to root of lingula and mandibular sulcus.

cle are encountered, or bone may be contacted superficially. If the needle is inserted into the medial margin of the sulcus, the internal pterygoideus muscle may be encountered. If the needle is inserted too deeply without contacting bone, it may be entered into the deeper fibers of the pterygoideus muscle, or into the medial lobe of the parotid gland.

c) The necessity of bone contact is that of a depth gauge, rather than a guide to needle angulation in relationship to the angle of the ramus. This advised contacting of bone should not be confused with that technique which suggests the use of the bone as a guide to reach the mandibular sulcus. Nevin and Puterbaugh [2] advise ". . . advancing the needle posterior and externally, endeavoring to keep the needle in close proximity to bone until the point of the needle gently encounters the posterior wall of the sulcus mandibularis. . . ." The obvious disadvantage of this technique is the periosteal trauma inflicted in many cases.

d) The lateral angle of needle advancement must be determined in each injection by the operator. It is dependent upon the lateral angulation of the ramus in relationship to the body of the mandible. When this angulation is marked, the directional line of approach of the syringe and needle is from the second bicuspid-first molar region on the opposite side of the mouth. When the angle of the ramus is more nearly parallel to the body of the mandible the angle of approach is more acute, with the syringe lying between the first and second bicuspids on the opposite side of the mouth. In the edentulous mouth these values must be approximated.

DISCUSSION TECHNIQUE

A generalized discussion of the suggested injection technique evolves the following points:

1) The technique is based upon fixed, bony landmarks which are less variable and therefore more reliable than soft tissue landmarks for determination of puncture point and needle insertion. The use of the teeth as landmarks in determining needle puncture point is eliminated because of the great variability as to presence or absence and positional relationship. The relationship of the depth of concavity of the anterior border of the ascending ramus, as a constant and definite guide establishes a method for determination of needle puncture point and needle penetration which is most logical.

2) Allowance is made for the variant found in the relationship of the angulation of the ramus to the body of the mandible.

3) Depth of needle insertion is a most favorable factor. It is true that more than 90 per cent of mandibular injection failure is due to needle insertion which is too low or too deep. Since the generalized direction of solution flow is *downward and backward*, the final needle position in the injection should be such as to compensate for this factor. A *relatively* high and *relatively* shallow needle insertion is to be preferred. The ideal point for deposition of the solution would be at the anterior margin of the mandibular sulcus, three to five millimeters above the root of the lingula. There is no advantage gained by attempting to contact the lingula with the needle point. This leads to penetration of

the sphenomandibular ligament with subsequent patient-discomfort and post-injection pain. Since a low-grade trismus accompanied by mild discomfort is the most common post-injection complication, every effort should be made to eliminate such undesirable sequelae.

4) Most of the authorities advise a definite needle insertion depth. Posner [5] states that " . . . depth to which the needle is inserted, is practically the same for all persons . . . each individual could have been anesthetized with a three-quarter inch injection." Fischer [4] states "At a depth of one and-half centimeters from the point of puncture, the mandibular sulcus is easily entered . . . " Mead [6] suggests "one centimeter to block the lingual nerve and two centimeters to block the inferior alveolar nerve." Seldin [7] states that "total length of needle which is buried in the tissues . . [is] . . between twenty-one to twenty-seven millimeters." Leavitt [9] states "insert the needle and proceed in a straight line, without attempting at any time to bring the needle in contact with the bone, for a distance of one inch . . . " The author himself [12] advocates a needle insertion depth of one-half to three-quarters of an inch. The measurements made on the 1,400 rami show that the factor of variation is too great to safely indicate a definite needle insertion depth which may be applicable in all cases. Analysis of the data show that no constant insertion depth could be used on more than 50 per cent of the specimens measured. This statement is further substantiated by the work of Simon and Komives.[1] It is therefore evident that the individual case determines the indicated depth of needle insertion.

CONCLUSION

1. The measurements taken from 700 mandibles, or from 1,400 rami, readily indicate the wide range of variation in the dimensions and shape of the human mandible. The existence of this wide dimensional range must therefore influence any proposed injection technique. Those injection techniques which used a fixed dimensional factor will have a high percentage of failure. Anatomical knowledge, clinical experience and operative judgement must be applied in each injection to maintain a constantly successful technique, and to avoid undesirable post-injection complications.

2. It has been definitely established that the depth of concavity of the anterior marginal border of the ascending ramus of the mandible bears a distinct and constant relationship to the lingula and mandibular sulcus, in that they both lie in the same horizonal plane, which is parallel to the mandibular occlusal plane. The fact that 90 per cent of the depth-of-concavity planes established were found to lie within a 5.0 mm. distance *above* the root of the lingula gives evidence of the constancy of this premise. It should be recognized that this "depth of concavity," *per se*, does not *directly* locate the mandibular injection puncture point. It is merely a guide, or key, to the correct puncture point in that it determines the horizontal plane upon which needle puncture and insertion should be made. It is a valuable guide, but not so infallible as to entirely supplant the premises made in paragraph (1) of these conclusions.

3. The depth of needle insertion is also a markedly variable factor. The specimens measured showed a dimensional variation of 6.0 to 21.0 mm. in the measurement made from the root of the lingula to the internal oblique line. The width of the rami measured varied from 19.0 to 42.5 mm. These extreme variations demon-

strate the lack of wisdom in advocating a specific depth of needle penetration for use in all cases. It is quite apparent that the depth of needle insertion is entirely dependent upon the anatomic structure of the particular case being injected.

4. The proposed injection technique is based upon fixed, osseous landmarks and eliminates the use of soft tissues, or teeth, as guides to proper needle insertion, since the latter are less constant and more variable as to shape, size, presence or absence, and positional relationship.

5. The measurements made upon these 700 mandibles, while not absolutely conclusive numerically as to dimensional variation, are of sufficient number as to constitute a valuable addition to, and a substantiation of, the work of Simon and Komives [1] and Nevin and Puterbaugh.[2]

—Jenkins Arcade, Pittsburgh, Pa.

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SOCIAL EVENTS—STATE MEETING

GOLF OUTING. This will be held at the Alcoma Country Club on Tuesday, May 31, beginning at 1: 00 P. M. The Club may be reached by following Route 80 East of Pittsburgh.

Dr. A. C. Barclay (914 Highland Bldg., Pittsburgh 6, Montrose 3478) is secretary of the State Dental Golf Tournament and all information may be obtained from him.

Dr. Barclay requests that the holders of the West Cup and the Germantown Cup please forward them to him before the date of the tournament.

DANCE. The dance and entertainment will be for the benefit of the Dental Relief Fund. It will be informal at $5.00 per couple. It is scheduled for 10: 00 P. M. in the Urban Room of the William Penn Hotel. Tickets may be purchased at the Registration Desk, 17th Floor.

LADIES LUNCHEON. This President's Day luncheon and bridge of the Ladies Auxiliary to the Odontological Society will be held in the University Club, Oakland, Pittsburgh, Wednesday, June 1, at 12: 30 P. M. All women attending the State Meeting are cordially invited to attend.

Reservations must be in before May 28; they may be sent to Mrs. C. A. Flecker, 256 S. Winebiddle Avenue, Pittsburgh 24, Montrose 0914. The cost is $2.50 per plate.

LADIES TEA. This will be held Thursday, June 2, in Suite 468-470, William Penn Hotel, from 3: 00 to 5: 00 P. M. All women are cordially invited.

The Etiology of Dental Caries

◆

I. A System of Analysis of the Literature

◆

GERALD J. COX, PH.D.

THE etiology of dental caries is complex. There are many paths that the well-intentioned analyst may follow in error; there are many ways in which the opportunist may offer his wares in a shining light.

It is the present purpose to offer a system for analysis of the knowledge of dental caries so that the necessary broad view will prevail for the ultimate attainment of the understanding of the causes of caries. From understanding can come prevention though it is recognized that control can be achieved in part by acting from even the most incomplete knowledge of causes.

The proposed system is to list (1) all the dental structures that may reasonably be related to caries, (2) the properties of these structures that may be operative in caries resistance, (3) the attacking forces, and (4) the properties of the attacking forces. From such a listing combinations can be made somewhat in the form of sentences involving words or phrases from each of the four lists and their veritability can be judged from established facts. It is not likely that any single sentence involving only a single selection from each listing can explain dental caries; many sentences can be written for which there is no supporting knowledge.

The following lists under the above four categories are not complete and probably never can be completed. It is the privilege of any analyst to add to the lists but it would seem unnecessary to remove any of the items, though some may seem never to be involved in the cause of or in the resistance to caries.

(1) *Tooth structures possibly related to dental caries:*

Nasmyth's membrane	Hypoplastic enamel
Surface structure of enamel	Dentino-enamel junction
Enamel rods	Dentin
Interprismatic substance	Secondary dentin
Lamellae	Interglobular spaces
	Pulp
Mottled enamel	

(2) *Properties of structures that may be operative in resistance to caries:*

Chemical composition	Permeability
Solubility	Fine structure
Hardness	Gross structure
Viability	Position of the teeth

(3) *Possible attacking and resisting forces:*

Normal structures, fluids and operations of the mouth:

Gingivae	Buccal secretions
Lips	Blood
Cheeks	Lymph
Tongue	Mastication
Saliva	Deglutition

Extraneous and abnormal:

Food	Materia alba
Water	Calculus
Microorganisms	Specific diseases

(4) *Properties of the above attacking and resisting forces:*

Chemical composition of substances	Anti-enzyme properties
Metabolism of organisms	Symbiosis
Viability of organisms	Anti-biotics
Frequency of presence	Relative amounts of each

Professor, School of Dentistry, University of Pittsburgh, Pittsburgh, Pa.

This is the first of a series of critical studies of the literature on caries etiology.

It is advisable to use the same procedure of bringing all possible factors to bear on the analysis of specific relations. Thus, in a consideration of the relation of heredity to caries there are many obvious factors not listed above. However, some of them are suggestive of things to be considered. Certainly form of tooth and position in the mouth would be considered but it may not be so obvious that volume of saliva might be inheritable. Use of the outline early leads one to recognize the paucity of knowledge about some of the phases that may have important bearing on caries etiology.

In the use of the system a start may be made at any particular point but the effectiveness of the analysis depends on the best selection. For example, if "interprismatic substance" is chosen for investigation, the proceedings would be started in a comparably vague manner than if some item such as "water" were selected. For the latter choice one at once considers the properties of water in the positive and the negative senses of an attacking force. Water serves to attack through its effect in diluting saliva, as being the heat bearing or abstracting medium in hot and cold beverages, as a solvent and diluent of acids and carbohydrates, as a bearer of microorganisms and an essential for their survival. It may contain ions that are beneficial at certain concentrations but harmful at others such as fluoride, copper and iron. It may contribute ions regarded as wholly beneficial such as calcium, magnesium and phosphate. It dilutes and removes acids from plaques and cavities. It assists in mastication and deglutition both as a fluid and as a constituent of foods. Each of these features of water may be aligned with the other items of the outline either stated or implied for the more logical examination of caries etiology. The starting point of such analyses seems best to be from the item about which the most is known.

Analysis of the facts and ideas concerning caries requires clarification of definitions. For example, "control" is used loosely to cover all aspects of prevention of caries. It rather implies" reduction of rate of caries activity." Three terms might be used, such as "prevention," "control" and "arrest" with their obvious implications. The terms would best be applied to specific areas of teeth rather than to the whole mouth, as decay may simultaneously be prevented in the mesial surface of an incisor, controlled in a distal surface of a bicuspid, and arrested in an occlusal cavity in a molar.

Consideration should be given to the quantitative phases of specific factors and to the time relations with tooth life. Thus, the fluoride ion may be wholly ineffective against bacteria at its concentration in the saliva or even beneficial but at levels of 250 ppm. (parts per million) in culture media it begins to inhibit growth. It may act through an entirely different mechanism against caries whether it acts in the formation of the teeth or has been topically applied.

The system here presented is merely the one that has always been used. It merely sets down items that should not be ignored. Through its use it may be possible that not only understanding of caries may be advanced but understanding may be achieved between different "schools of thought."

PENNSYLVANIA
DENTAL JOURNAL

MAY 1949

EDITORIAL

DENTAL ACT AMENDED

DURING the recent session of the Pennsylvania Legislature an amendment to the Dental Act of the Commonwealth (P. L. 216, Act of 1933) passed both the Senate and the House, was signed by Governor Duff, and has now become law. The amendment was introduced by Albert R. Pechan, D.D.S., State Senator from the 41st Senatorial District and a member of the Pennsylvania State Dental Society.

Section 2 of the Act, which defines the extent of oral treatment permitted by dental hygienists, now reads: "A 'Dental Hygienist' is one who is legally licensed as such by the said dental council and examining board to remove tartar deposits accretions and stains from the exposed surfaces of the teeth and directly beneath the free margin of the gums *and to make application of sodium fluoride as defined by the board to the exposed surfaces of the teeth for the prevention of dental caries* in the office of a dentist or any public or private institutions such as schools hospitals orphan asylums and sanatoriums or State health cars under the general supervision of a licensed and registered dentist and not otherwise and who does not perform any other operation or work on the teeth jaws gums or mouth whatever." (Italic type indicates the addition to the Act.)

This now means that registered dental hygienists in Pennsylvania, under the general supervision of a licensed and registered dentist and not otherwise, may apply a solution of sodium fluoride to teeth to help prevent and reduce dental caries.

It is not necessary to describe to Pennsylvania dentists what fluorine is, how fluoride treatment was discovered, and how fluorides prevent caries. The presentation of such data in the dental press (and on occasion in the public press) during the past two years at least, should have been sufficient. The beneficial results of the topical application of sodium fluoride among large groups of children have been so conclusively demonstrated that the Council on Dental Health of the American Dental

Association recommends that the fluoride treatment "should be used routinely in private dental offices and in school and community dental health programs."

That Pennsylvania hygienists are now legally qualified to perform this preventive treatment testifies to the wisdom and farsightedness of the governing agencies of the dentists of the Commonwealth. In these days when the problem of dental manpower is so important and demanding, it is encouraging to report that we in Pennsylvania have made it legally possible to augment our dental personnel by extending the scope of preventive practice of at least one auxiliary aid—the dental hygienist.

Some groups in the State Society believed that the introduction of this amendment would subject the Dental Act to other amendments detrimental to the dental profession; their fears have proven groundless. Other groups are of the opinion that the extension of dental practice procedures to auxiliary aids will provide opportunity for further usurpation of the dentist's prerogatives. We believe that their fears likewise will prove to be without sound bases.

What has been accomplished by this amendment essentially is this: the Pennsylvania State Dental Society has recognized that more and more preventive measures for caries control must be instituted if we dentists are to fulfill our obligation to the State, and the personnel for extending these preventive measures legally has been augmented greatly.

Much credit should be given to all who had a part in this amending of the Dental Act. This accomplishment is but another reason why progressive Pennsylvania ranks as one of the three largest components of the American Dental Association.

"OBSERVE THE OPPORTUNITY"

(Ecclesiasticus, IV, 20)

ANNUAL MEETING

PENNSYLVANIA

STATE DENTAL SOCIETY

JUNE 1-2-3

PITTSBURGH

NEWS FROM THE UNIVERSITIES

PENNSYLVANIA

The Dental Alumni Society, University of Pennsylvania, will hold the annual meeting and dinner on Friday, June 17, 1949. The morning will be given over to the assembling of reunion classes and the annual meeting. This will be followed by luncheon. The details of the educational program, scheduled for the afternoon, will be announced. There will be cocktails and dinner in the Bellevue-Stratford Hotel that evening. The morning and afternoon sessions will be held in the Evans Institute.

The Oral Hygiene Department has received a collection of autographed photographs of prominent members of the dental profession who were pioneers in establishing courses in oral hygiene. These photographs were collected, framed and presented to the school by Dr. James E. Aiguier. They are on display in the Oral Hygiene Office, and should prove a valuable contribution to the history of the oral hygiene movement.

Faculty news and notes follow: Dr. Paul Boyle has been appointed to the staff of the University Hospital in connection with the cancer training program for undergraduates. Dr. LeRoy Ennis recently has presented papers on the interpretation of x-rays before the National Dental Society at Newark, at the Navy Department, Philadelphia, and at Glen Falls, N. Y. Dr. Lester W. Burket, during March, gave a postgraduate course on oral medicine to the members of the Monmouth County Dental Society, Asbury Park, N. J. Dr. Louis I. Grossman spoke before the staff of the Naval Dental School, Bethesda, Md., in middle March. Dr. Charles P. Egoville was essayist and clinician recently at a meeting of the South Jersey Dental Society, Camden. Dr. T. M. Meloy, Jr., addressed the James R. Cameron Society of Oral Surgery, Temple University School of Dentistry, on St. Patrick's Day. Drs. Appleton and Williams gave a progress report on naval research being conducted in the dental school at the Naval Medical Center, Bethesda. Drs. John J. Berg, Carl Leander, Harrison Berry, Clark E. Morrow, and Claude S. LaDow were among other members of the faculty who presented papers and clinics during the latter part of March and April.

The Department of Oral Pathology has announced a biopsy diagnosis service. Information concerning the preparing and mailing of specimens may be obtained by writing to the Department of Oral Pathology at the school; complete instructions will be sent on request.

The 1949-1950 program of the postgraduate division of the School of Dentistry has been prepared and lists the courses to be given in the Fall of 1949 and continuing into the Summer of 1950. Information and application blanks may be obtained by writing the Director, Postgraduate Division, School of Dentistry, University of Pennsylvania, 4001 Spruce St., Philadelphia 4.

PENN DENTAL ALUMNI SOCIETY—JUNE 17

PITTSBURGH

Careful analysis of teaching material and methods continues to hold the attention of the faculty. A series of seminars is being conducted with representatives of the School of Education of the University in order to discover better approaches to the various problems encountered in dental education.

What are the characteristics of an effective dentist? Everyone has ideas but no one has carried out the research necessary to supply the answer. The American Institute for Research and the Psychology Department of the University in conjunction with the School of Dentistry are making a study to determine the goals to be set up in training students for the dental profession. The findings of the study will be based on the responses of a selected group of dentists, instructors in dental clinics, and a typical group of dental patients. The method being used has proved successful in analyzing important professional activities and is termed the "critical incident" technique.

A dinner meeting of Beta Chapter of Omicron Kappa Upsilon was held at the Faculty Club March 23rd with approximately 100 in attendance. Guests of honor included Dr. Harry McCarthy, national president, and Dr. A. L. Robinson, Professor of Chemistry and acting Librarian of the University, representing Sigmi Xi, honorary scientific fraternity. Dr. Gerald J. Cox was the speaker of the evening and spoke on "Serendipity." Senior students receiving honorary keys were Saul B. Arbit, Arnold Gottleib, Leonard L. Leef, George W. Sine, and Mrs. Doris Stewart. An honorary faculty key was presented to Dr. Dwight L. Black of the Operative Department; and an honorary alumni key to Dr. William D. McClelland, a Trustee of the University. This type of meeting was the first ever held and from the opinions expressed by those attending it will probably be made an annual affair.

Alumni Day will be celebrated on Tuesday, June 7, with a scientific program, luncheon, reunions, and participation in the general University alumni festivities.

Dr. Gerald J. Cox spoke on "Topical Applications," before the March 9 meeting of the Pittsburgh Section of the American College of Dentists, and the March 28 meeting of the Pittsburgh Academy of Dentists. He also spoke over radio station WCAE on March 18, his subject being "Chemists in Dentistry."

Dr. W. H. Archer addressed the annual combined meeting of the Bradford Medical and Dental Societies on oral pathology, April 13.

Dr. L. M. Monheim spoke on "Newer Aspects in Pain Relief" at the March 24 meeting of the Beaver Valley Dental Society, and on "General Anesthesia in Dentistry" at the March 28 meeting of the Monongehela Valley Dental Society.

Dr. C. W. Hagan was heard over radio station WCAE, March 28, on the program "Your Physician Speaks," the Allegheny County Medical Society's weekly broadcast. His subject was, "Dental Care for Children."

—M. E. NICHOLSON.

PITT ALUMNI DAY—JUNE 7

TEMPLE

The annual alumni homecoming celebration of the graduates of the Temple University School of Dentistry will feature a testimonial dinner to Dr. Gerald D. Timmons, dean of the school. The dinner will be held on May 26 in the Benjamin Franklin Hotel at Philadelphia, and Dr. J. Ben Robinson, dean of the University of Maryland School of Dentistry, has accepted an invitation to be the principal speaker.

There will be play for the alumni on the first day of the two-day celebration, a golf tournament having been scheduled for May 25 at the Cedarbrook Country Club, located just beyond the city limits of Philadelphia. The links tourney will be followed by a dinner for alumni at the club.

On May 26, there will be professional sessions during the day, with the first talk, "Oral Cancer," being given by Dr. S. Gordon Castigliano, of the Temple Dental School faculty and professor of oncology and assistant medical director of the American Oncologic Hospital, Philadelphia.

Following the annual election of officers to positions in the Temple University Dental Alumni Society, afternoon talks will be given by Dr. Ernest B. Nuttall, professor, Crown and Bridge, University of Maryland School of Dentistry, who will discuss, "Crown and Bridge Prosthesis," and Dr. H. Trendley Dean, Director, National Institute of Dental Research, whose topic will be "Relationship of Fluorine to Dental Health."

The first Temple University Junior ADA Day was held Monday, May 9, 1949, in the School of Dentistry. Members of the State Society were invited to attend. Scientific papers and table clinics were presented during the day. The speaker at the dinner was Dr. Harold Hillenbrand, Secretary, American Dental Association. It is planned that this event will become an annual affair.

TEMPLE ALUMNI MEETING—MAY 25-26

SAN FRANCISCO CONVENTION–VACATION

The American Dental Association will meet at San Francisco, October 17-20, 1949. The Pennsylvania State Dental Society has arranged a tour for Pennsylvanians who wish to make the convention trip a vacation as well.

It is planned to leave Pennsylvania Sunday, October 9, and to return Wednesday, October 26. The tour will include Colorado Springs, Salt Lake City, Royal Gorge, Los Angeles, and the Grand Canyon.

A direct communication and description of the tour will be sent shortly to all delegates, alternates, and officers. Also, the complete details will be published in the June JOURNAL for general information.

DISTRICT NEWS

FIRST DISTRICT

The Philadelphia County Dental Society is now approaching the end of the 1948-49 season of events. The March and April meetings presenting Dr. John V. Blady, Philadelphia, and Dr. Harry A. Tinker, Minneapolis, have been recorded in the JOURNAL. All of the scientific sessions have been under the able guidance of Dr. John P. Looby and a successful season has resulted. The roster of new officers was published in the last issue.

The local and component societies also have come to the conclusion of their annual programs.

Following the presentations of Dr. F. W. Konzelman, Atlantic City, and Dr. C. H. M. Williams, Toronto, the Philadelphia Society of Periodontology brought to a close their scientific meetings. The officers for 1949-50 are: Dr. Andrew Donath, president; and Dr. George C. Stewart, secretary-treasurer.

On May 11, Dr. Edward A. Manning spoke before the North Philadelphia Society of Dental Surgeons on the subject "Pin Inlay Construction for Anterior Bridge Attachments with Emphasis on Tooth Conservation." On June 8, the Society will hold the annual social get-together at the North Hills Country Club.

The March and April meetings of the West Philadelphia Odontgraphia Society presented Drs. A. Raymond Baralt and Harrison M. Berry, Jr. The newly elected officers are: Dr. Thomas Dilworth, president; Dr. Joseph P. Echternach, Jr., 1st vice-president; Dr. Helen E. Myers, 2nd vice-president; Dr. Muriel K. G. Robinson, secretary-treasurer; and Stanley A. Ireland, editor.

The Pennsylvania Association of Dental Surgeons during the past year have presented most interesting scientific sessions. The March meeting was given by Dr. George C. Davis whose subject was the third molar and deciduous teeth and when they should be extracted. At the April meeting Dr. Benjamin Benedict spoke on tissue distribution and control in full denture construction.

The April meeting of the Eastern Dental Society was in memory of William Ersner; the clinician was Dr. Emanuel E. Blumenthal who discussed anesthesia and its practical application in oral surgery. The annual outing of the Eastern Dental Society will be held May 18 at Philmont Country Club.

On Friday, March 11, over a hundred friends and members of the profession attended a dinner sponsored by the Stomatological Club of Philadelphia in honor of Dr. John J. Stetzer, Sr. This was in recognition of the fifty years that Dr. Stetzer has been in dental practice. Dean Timmons, Temple University School of Dentistry, was toastmaster; Mr. Henry Rainey, Dr. Earle C. Rice, Dr. Harry Mesjian, and Dr. J. R. Cameron were the speakers. Many letters and telegrams were received, including those from Dr. Clyde Minges and Dr. Harold Hillenbrand of the American Dental Association, and Dr. J. S. Oartel of the Pennsylvania State Dental Society.

—MARTIN A. SALAS, *Editor.*

SECOND DISTRICT

The Montgomery-Bucks Dental Society met March 28 in the Valley Forge Hotel at Norristown. Dr. Edward R. Strayer, Temple University School of Dentistry, spoke on "The General Practitioner's Approach to Problems of Malocclusion." The April 25 meeting saw Dr. Lester W. Burket, School of Dentistry of the University of Pennsylvania, speak at length on the general subject of oral medicine. This meeting also was held at Norristown.

The new officers of the Dental Society of Chester and Delaware Counties were printed in the April issue of the JOURNAL.

THIRD DISTRICT

Dr. Robert Berman, Wilkes-Barre, spoke at the February meeting of the Scranton District Dental Society. His subject, "A Practical Approach to Dental Practice," revolved around the two major problems that make up a well-balanced concept of dental practice. First, acquainting the patient with his over-all personal dental problems in a manner that will be clearly understood; secondly, establishing a relationship of confidence between the dentist and patient so that the patient will trust and respect the dentist's professional ability and personal integrity. Successfully established, patient cooperation is readily achieved. Consciously pursuing the application of a broad and thorough-going concept of examination, analysis, planning, and treatment as a general dental procedure in place of the piece-meal palliative treatment, unrelated to an over-all treatment plan for the long-range saving of teeth, will gain our profession a new respect. This accomplishment will be of particular advantage to the profession among the articulate magazines and press whose articles help mould public opinion.

The Scranton Society, operating through its Oral Hygiene Committee, united with the Health Section of the Welfare Council of Lackawanna County in a meeting on April 28. Dean J. L. T. Appleton, School of Dentistry of the University of Pennsylvania, discussed the "Problems of Children's Dentistry." The various agencies in the Welfare Council, the Medical Society, and the public were invited. It was the first large and general meeting of the kind at which dentistry, notably dentistry for children, was discussed.

The meeting in March presented Dr. Abraham Berliner, Brooklyn. His subject was "New Concepts in the Biologic Approach to the Periodontal Problem."

The speakers at the February and March meetings of the Luzerne Society were Ralph Shanno, M.D., and William Heck, D.D.S., respectively. Notices concerning their papers were contained in the 3rd District News in the last issue of the JOURNAL. Also, appropriate reporting of the February and March meetings of the Luzerne County Dental Study Club appeared in the April JOURNAL; Dr. P. Philip Gross and Dr. J. Stanley Jordan were the essayists.

The Hazleton District Dental Society met on March 8 in the Hotel Altamont. Dr. Israel Harrison, Philadelphia, spoke on the problem of "Casting Problems." Dr. Harrison is a graduate of Penn, class of 1923, and is a past-president of the Montgomery County Dental Society; he is now a member of the Philadelphia County Dental Society. He was senior dental officer of the First Battalion, USNR, from 1934 to the beginning of the War. A member of the American Academy of Dental Medicine, he has lectured extensively.

The Panther Valley Dental Society met March 8 in Lansford. Mr. Jesse E. Salzman presented a clinic on the McGrane micro-denture procedure; Mr. Muller, representing the Du Pont Company, exhibited films explaining the making of x-ray films.

—FRANK W. NASH, *Editor.*

FOURTH DISTRICT

The May meeting of the Reading Dental Society will be held on the 18th at the Wyomissing Club. This will be a combined meeting with the Reading Eye, Ear, Nose and Throat Society. The speaker will be S. Gordon Castigliano, M.D., oncologist and chief of the head and neck service at the American Oncologic Hospital, Philadelphia; his subject will be "The Oral Cavity—The Physician and the Dentist."

The annual outing of the 4th District will be held at the Schuylkill County Country Club late in June. Please note the change from the Lebanon Country Club as reported in the last issue of the JOURNAL. The date and details will be announced later.

The Dental Seminar met April 19 in the Community General Hospital. A representative of the C. I. B. Laboratory, Philadelphia, spoke on "Mouth Rehabilitation."

At the March meeting of the Ladies' Auxiliary, Mrs. Dorothy Eberly Norton, dental hygienist in the Shillington schools, was the speaker. Also, Mrs. Yoder, Mrs. Rothermel, and Mrs. Rappoport discussed the problem of socialized medicine. On April 18 a combined business meeting and tea was held at the State Hill home of Dr. Freed.

—GEORGE E. PASKOPOULOS, *Editor.*

FIFTH DISTRICT

The Harrisburg Dental Society met March 11 to hear a paper and view the motion pictures by Dr. H. B. Anderson, Pittsburgh, on a phase of prosthetic technique. The method of rebasing full upper and lower dentures by the wax-impression technic was described fully; also there was a discussion of the compound and thimble impressions for cast crowns. Dr. Hollister introduced Colonel Van Dervort of the New Cumberland Army Base Dental Corps. The April meeting presented Mr. Arthur Hall, a prominent Harrisburg attorney.

—B. M. BUYER, *Editor.*

The April meeting of the Harris Dental Society, Lancaster, met on the 26th. The speaker was Commander Kenneth O. Turner, USN, who lectured on "Operative Procedure in Amalgam Restorations." His talk was augmented with color and sound motion pictures and a display of models. Commander Turner is Chief of Operative Service in the Navy Dental School at Bethesda, Md.

The dental program in the schools of Lancaster is now in its fourth year; it is recognized as a definite and important part of the general school health program. Thanks are due to those dentists who participate in the program and give freely of their time and knowledge. Praise also must go to the City Hospital Dental Clinics which so unselfishly care for the underprivileged children. There have been approximately 2,500 children examined this year in the city schools. The two hygienists have given a complete prophylaxis to every elementary school child in the city—from kindergarten to sixth grade.

SEVENTH DISTRICT

The Cambria County Dental Society met in the Capital Hotel, Johnstown, March 28. Dr. John Berg, associate professor of operative dentistry, University of Pennsylvania School of Dentistry, spoke on the "Proper Manipulation of Amalgam." He emphasized keeping the cavity dry, proper condensation of the alloy, and maintaining the contact point. He suggested the use of a copper matrix band instead of the steel band so commonly used; this will help greatly in obtaining and maintaining the proper contact point. Dr. Berg also demonstrated how an improvised copper matrix band with a ligature could be used for placing proximal fillings in deciduous molars. Motion pictures from the Dental Research Department of the ADA were shown relative to Dr. Berg's Clinic.

The Northern Cambria Dental Society met at Ebensburg, March 30, in the Wissinger Inn. Mr. Muth, of the Muth and Mumma Dental Laboratory, Harrisburg, presented a demonstration of the natural-replica denture; he also gave some interesting facts on the use of plastics in dental practice. Mr. Donald Drake of the Metal Department of Muth and Mumma presented a series of charts and a display of replicas of practical cases

pertaining to the new method of designing and construction known as "Equipoise." —H. M. DUNEGAN, *Editor.*

EIGHTH DISTRICT

The Annual Spring Meeting of the 8th District will be held June 16 at the Kane Country Club, Kane, Pa. This will be the Eighteenth Annual Meeting. A complete program will be mailed soon to all members. Plan now to attend this meeting. —L. R. CUPP, *Editor.*

NINTH DISTRICT

The Spring Meeting of the 9th District will be held in the Hotel Conneaut, Conneaut Lake Park, June 24 and 25. Please write the hotel direct for reservations.

The Crawford County Dental Society reports that at one of their recent meetings Dr. J. W. Lang gave a demonstration of placing two of his young patients in a relaxed condition so that they felt no pain. He states that he does this routinely in his practice by mild hypnosis. Dr. Lang spoke before the Erie County Dental Society on April 20.

—R. J. SAMPLE, *Secretary.*

TENTH DISTRICT

The members of the Odontological Society were privileged to hear, at the March 16 meeting, Mr. A. M. McNickle, vice-president of the Fidelity Trust Company of Pittsburgh. He spoke on the subject, "It Isn't What You Leave, But How Much Will Your Family Receive." The subect was as cold as death itself, and in some ways as bitter; but the wit of Mr. McNickle was a pleasant contrast to the topic as was his warm and friendly personality. He described in detail how some professional men will study and sacrifice for a life-time and die leaving a fair share of this world's supply of liquid and frozen assets to their heirs, only to have it come about that their widows and children do not actually receive the money. Most members of the Odontological Society in attendance could not but fail to re-examine mentally his entire personal estate program.

A Conference of Component Society Officers will be held in the early Fall.

The Westmoreland County Branch Society, in March, presented Dr. Charles Goldstein who gave an interesting talk on periodontia and allied problems. The meeting was held at Greensburg.

The Periodontology Club met April 3. Dr. Paul Foreman was the speaker. The group will give a combined-clinic at the June State Society-Odontological Society meeting.

The March and April meetings of the North Side Branch Society presented Dr. H. B. Anderson (Wax Impression Technic for Full Dentures), and Dr. S. S. Haudenshield (The Use of Amalgam and Its Possibilities.)

The March meeting of the South Hills Branch Society met and presented Dr. Raymond Hyde who spoke on "Methods of Constructing Immediate Dentures." At the April meeting, Dr. Krugh discussed "Medical Aspects of Ailments of the Skin—Including a Survey of Lesions of the Mouth." This group will meet June 8 at the Chartiers Heights Country Club for the annual golf outing.

The Fayette County Branch Society met February 22 with Dr. W. M. Thompson, Jr., discussing the fundamentals of occlusion and vertical dimension as related to orthodontia.

The Wilkinsburg Branch Society met in April. Dr. J. O. Boyle, president of the Odontological Society, and Dr. M. E. Nicholson, chairman of the Council on Dental Health, were the speakers. An outing of this branch will be held in September. —J. S. FROST, *Asst. Secretary.*

On Wednesday, April 27, the Pittsburgh Section of the American College of Dentists sponsored a dinner in memory of H. E. Friesell, former dean of the School of Dentistry. Following the dinner, the Section presented to the School of Dentistry a bronze memorial plaque as a testament to the contribution of Dr. Friesell to the dental profession and to dental education. The speaker on this occasion was Dr. William D. McClelland, a trustee of the University of Pittsburgh, and prominent alumnus of The School of Dentistry.

The Pittsburgh Dental Assistants Association met April 12. The speaker, following dinner, was Dr. William D. McClelland who spoke on "The Criminal Picture on the Local Front." Dr. McClelland is Coroner of Allegheny County. Mr. Patsy Verzulla, police photographer of the City of Pittsburgh, exhibited films.

The program of the State Meeting (Dental Assistants Association) to be held in Pittsburgh Jue 1-2-3, appears on another page of this issue. All assistants in the state are invited.

—EDNA M. JUSTICE, *Publicity.*

The Downtown Branch of the Odontological Society announces an open meeting on Tuesday, May 24, in Mellon Institute, Oakland, Pittsburgh, at 8:00 P. M. All members are invited.

Dr. John R. Thompson, Northwestern University Dental School, will discuss the topic: "The Rest Position of the Mandible and its Application to the Practice of Dentistry." This will include the determination of the normal rest position of the condyle in denture construction; how to eliminate or prevent temporomandibular joint pains through selective tooth grinding, orthodontia, proper denture construction, or mouth rehabilitation.

GENERAL

Dr. Walter S. Hanna, formerly of Pittsburgh, is now practicing at 336 North Lime Street, Lancaster. Dr. Hanna is a graduate of the School of Dentistry, University of Pittsburgh, class of 1921. After six years of general practice at Monaco, Pa., he took post-graduate work in exodontia and oral surgery and entered specialty practice at Pittsburgh in 1929. Following 5 years of active service in the Army, both in this country and in the Pacific Theater, Dr. Hanna began general practice in Lancaster; in the near future he expects to return to the practice of exodontia and oral surgery.

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THE NEW BOOKS

DENTISTRY IN PUBLIC HEALTH. Edited by Walter J. Pelton, B.S., D.D.S., M.S.P.H., Senior Dental Surgeon, United States Public Health Service, Colorado; and Jacob M. Wisan, D.D.S., M.S.P.H., Director, Joseph Samuels Dental Clinic, Rhode Island State Hospital; for the Dental Health Section of the American Public Health Association. Price $5.50. Philadelphia, The W. B. Saunders Company, 1949.

The place of dentistry in public health has long been a much debated subject. Mainly as a result of opinions expressed at the 1944 meeting of the American Public Health Association, the group decided that a text-book describing the place of dentistry in public health was greatly needed. Accordingly a committee was appointed and selected Doctors Pelton and Wisan to plan the book and edit it.

The preface states, "The field of dental health cuts across the disciplines and knowledge of other fields of health; consequently it was decided that the best approach was to have each chapter presented by someone most qualified to present its subject matter." The 17 chapters of the book have been prepared by a number of well qualified individuals, each dealing with his particular field of endeavor. The first few chapters give a general background and definitions; the next few enumerate the tools and/or aids at our disposal for properly attacking the dental health problem; and the last chapters are devoted to a discussion on the practical application of the tools and aids in solving the problem.

Some of the chapters are: The Setting: Medical-Social Background, by Louis S. Reed, Ph.D., Senior Economic Analyst, Division of Public Health Methods, United States Public Health Service; Dentistry and the Public Health Movement, by William R. Davis, D.D.S., Director, Bureau of Public Health Dentistry, Michigan Department of Health; Economic Aspects of the Dental Health Problem, by Melvin L. Dollar, B.S., Executive Director, Group Health Association, Inc., and Hugo Kulstad, D.D.S., Chairman, Council on Dental Health, American Dental Association; Surveys and Evaluation of Dental Programs, by John W. Knutson, D.D.S., Dr. P.H., Senior Dental Surgeon, Chief, Dental Section, States' Relations Division, United States Public Health Service; Nutrition and Diet in Dentistry, by Nina Simmonds, Sc. D., Assistant Clinical Professor of Nutrition, College of Dentistry, University of California; Laboratory Tests for Caries Activities and Their Application, by Philip Jay, D.D.S., M.S., Sc. D., Professor of Dentistry, School of Dentistry, University of Michigan; two chapters on Fluorine, by H. Trendley Dean, D.D.S., and Francis A. Arnold, D.D.S., both of the National Institute of Dental Research; Dental Health Education, by Dorothy B. Nyswander, Ph.D., Professor of Public Health Education, School of Public Health, University of California; Local Dental Health Problems—Rural and County, by Allen O. Gruebbel, D.D.S., M.P.H., Executive Sec'y, Council on Dental Health, American Dental Association; Urban Communities, by Harry Strusser, D.D.S., Chief, Bureau of Dental Services, New York City Department of Health; Federal Dental Programs, by Frank C. Cady, D.D.S., M.P.H., Dental Director, Dental Consultant, United States Public Health Service, Regions 1 and 2; and Professional Organizations, by Harold Hillenbrand, D.D.S., Secretary of the American Dental Association.

The material is well prepared and presented primarily for undergraduate students, but any dentist interested in current developments in public health thinking and planning should have the text readily available for reference.

The wealth of source material represented is staggering. The bibliography lists more than 600 books and articles with 50 additional reading references.

Each chapter author presents his particular subject in an objective manner, giving facts and figures, and in most instances allowing the student to draw his own conclusions. Numerous graphs, statistical tables, charts, and other similar aids are made use of in proving points of discussion.

This is the most complete and comprehensive work of its kind ever published and every member of the dental profession could profit immensely by making it an addition to his library.

—M. E. NICHOLSON, *Pittsburgh.*

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CLASSIFIED

(For rates, write Business Manager, 217 State St., Harrisburg, Pa.)

ORTHODONTIST, former Naval Dental Officer, will complete 2½ years of graduate orthodonic training at the University of Michigan, June, 1949. He is desirous of obtaining an office location wherever the best opportunities are present; would consider an association. Address the JOURNAL, Box 103, 217 State Street, Harrisburg, Pa.

WANTED — Dental resident for institution near Philadelphia. State age, experience, and references in first letter. Elwyn Training School, Elwyn, Delaware County, Pa., c/o E. A. Whitney, M.D., Superintendent.

DEATHS

COURTRIGHT, Burton A., Forty-Fort; School of Dentistry, University of Pennsylvania, 1902; 1st Lieutenant, World War I; died January 6.

GUILFORD, Dudley, Philadelphia; Philadelphia Dental College, 1902; attended Penn Charter School, graduated from Lawrenceville, and in 1899, from Sheffield at Yale; teacher at Temple University; teacher at Ecole Dentaire, Paris; member of the dental surgery department, 1915, American Ambulance Service, Neuilly, France; died March 24.

KUPISZ, William J., Philadelphia; Medical-Chirugical College of Philadelphia, 1916; died April 16.

NOBLE, Joseph H., Philadelphia; School of Dentistry, University of Pennsylvania, 1899; graduate of Millersville State Normal School; school teacher for three years before entering dental school; recently received certificate of merit from Philadelphia County Dental Society for 50 years in practice; died April 2, aged 75, of a heart attack.

MISSING

SINCE SEPTEMBER 11, 1947

BEVERLY SHARPMAN

Description: 17 years; 5 feet, 3 inches; 135 pounds; brown hair; brown eyes; light complexion; heavy build. Carrying light tan suit case with three changes of clothes. Last seen at school on Registration Day.

If located notify: HOWARD P. SUTTON, Superintendent of Police, Philadelphia, or

MRS. NETTIE SHARPMAN
4207 Viola Street
Philadelphia, Pa.

Her dental record to 1945 reveals:

Maxillary, *right:* Second molar, two small amalgam fillings; second bicuspid, mesio-occlusal amalgam; first bicuspid, occlusal amalgam; central incisor, mesial silicate.

Maxillary, *left:* Central incisor, mesial and distal silicate; lateral incisor, was abscessed and is probably missing or replaced now. First bicuspid, disto-occlusal amalgam; second bicuspid, mesio-occlusal amalgam; second molar, occlusal amalgam.

Mandibular, *right:* Second molar, occlusal amalgam.

Mandibular, *left:* Second molar, occlusal amalgam.